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ON THE DIFFERENT
STRATA
OF
EARTHS *and* MINERALS.

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More Parricularly
Of ſuch as are found in the COAL-MINES of GREAT BRITAIN.

By JOHN STRACHEY, *Eſq*; F. R. S.

JK.

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B.L.

OBSERVATIONS
ON THE DIFFERENT
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EARTHS *and* MINERALS.

THE following Sheets are grounded on Two little Tracts preſented to the Royal Society, concerning the different *Strata* of Earths and Minerals found in, or near the Coal Mines, in different and very diſtant Places of *Great-Britain*; for Illuſtration whereof, I therein inſerted a Draft ſuppoſed to be the Section of a Coal Country, applicable to the Coal Works of *Farringdon-Gourney*, and *Biſhop-Sutton* near *Stowey* in *Somerſetſhire* (which are about Four Miles diſtant) and have Fig. I.
herein extended that Draft N. W. to the Lead Mines on *Broadwell-Down*, and S. E. to the Chalk Hills of *Wiltſhire* and *Dorſetſhire*, including above 20 Miles.

THE Second Figure is a Section applicable to the ſame Fig. II.
Country, but at Right Angles with the former, ſuppoſed from *Mendip* Hills, South-Weſt, to *Cotſwold* North-Eaſt upon the Drift or Level of the Coal.

SIR

SIR *Robert Atkins*, in his Hiſtory of *Glouceſterſhire*, aſſumes, " That if a Line was drawn from the Mouth of " the *Severn* to *Newcaſtle*, and ſo round the Terraqueous " Globe, Coal would be found near that Line, and ſcarce " any where out of it." 'Twere to be wiſhed he had given ſome determinate Breadth to that Line; for taking it to be 120 Miles broad, it runs Northward through the Ocean, and takes in only a little of *Norway* and *Greenland*, where I queſtion, if Coal is diſcovered, and Southward this Line would touch none of the known World; whereas Coal is found in *France*, in *Ireland*, and ſome Parts of *Germany*, particularly the Biſhoprick of *Liege*, which will be excluded from this Line: yet I agree, that draw a Line, or rather a Segment, from *Lye* under *Mendip* in *Somerſetſhire*, through *Bath* to *Sunderland* on the Sea Coaſt in *Durham*, ſo that *Warwickſhire* (which would be without the Strait Line) might be included in the Bow or Middle of this Segment, and another parallel with it from *Tenby* in *Wales*, to *Baldoe* Weſt from *Falkirk* in *Scotland*, theſe two parallel Segments being about 110 Miles in Breadth, and 300 in Length, and bearing North and by Eaſt, and South and by Weſt, will include all the Coal hitherto found in *Great-Britain*, and excepting the Collyeries of *Warwickſhire*, which break out to the Southward, and conſiſt of Free Coal, the Northern Part of this Line will be found to be Free Coal, or that which burns to a white Aſh, as all the *Welſh*, and almoſt all the *Scots* Coal does; the other, or Southerly Line, will be of the Caking Sort, ſuch as is the *Somerſet*, *Glouceſter*, and *Newcaſtle* Coal; I will therefore call this the Coal-Plan. And let this Plan be ſtill farther extended South-Weſt, it will include not only the Lead Mines on *Mendip* Hills, and *Broadewell* Down, which croſſes and bounds the Coal Country on that End, but alſo the Copper Mines of that County, and *Devon*, and Tin-Mines of *Cornwall*; and carry the ſame Lines Northward beyond *Tay*, (which bounds the Coal Country at the North End) it will take in the Lead and Copper found in the Highlands of *Scotland*. Now as this Coal Country is at both Ends bounded by Hills of

Lead, ſo it is likewiſe traverſed and intercepted by ſuch Lead Hills in ſeveral Places, and theſe always lying higher than the Coal; for Inſtance, the Coal in *Pembrokeſhire* and *Carnarven* is cut off from that in *Flintſhire* by the Lead Mines in the Mountains; The Mountains of *Derby* and *Weſtmoreland*, abounding in Lead, intercept the Coal on both Sides; the Lead again in *Crawford-Moor* traverſes the Coal, and that in *Fife* and the *Highlands* croſſes and bounds it on the North.

FOR Diſcovery of Coal in any Place, they firſt ſearch the Gullets, Dens, and hollow Ways, if they can find any Appearance of Smut, Cliff, or real Coal, which ſometimes appears to the Day in Sides or Bottoms of ſuch Banks or Gullets where the Earth has been worn or waſhed away by the Land Floods, which Appearance of Coal in *Somerſetſhire* is called the Crop, is many times real Coal, but very weak and friable towards the Surface, yet grows harder and better the deeper it lies; Or if they find the Coal-Cliffs only, they are ſure there is Coal under them, tho' many times it may not prove worth the Working: Theſe Coal-Cliffs or Clives are, in moſt Parts of *Somerſetſhire*, toward the Surface, ſoft and reddiſh as is the Mould over them; but as they ſink deeper, the Workmen find them grow harder and darker, even to an hard Rock, and blackneſs of Coal itſelf, but not inflammable: They lie in Beds, and keep the ſame Courſes as the Coal keeps, which lies under them; for all Coal lies ſhelving like the Tyles of an Houſe, never Horizontal like Stones in a Quarry, nor perpendicular, unleſs broken by a Ridge which is a Parting of Clay, Stone, or Rubble, as if the Veins of Coal or Metal were broken in two by ſome violent Shock, and Earth, Rubble, *&c.* fallen in between. This Obliquity the Collyers in *Somerſetſhire* call the *Pitch*, and is generally about 22 Inches in a Fathom, and when it riſes to reach the Land, is then called the *Crop*, in the North *Baſſeting*. In the Works near *Stowy, Farringdon*, and ſome other Places, it riſes to the North-Weſt, and pitches to the South-Eaſt, but traps up to the South-Weſt, and down to the North-Eaſt; conſequently the Drift or Level is to the South-Weſt and North-Eaſt; but the farther they work to the

South-Weſt, the Level winds about Weſterly, and the more they work to the North Eaſt, it bends more Northerly.

CONSONANT to which, in the General Courſe from *Somerſet* to *Newcaſtle*, the *Medium* or common Drift will be found to be North-Eaſt by North, and South-Weſt by South, but as this Line muſt make a Segment to include *Warwickſhire*, which is near the Middle of its Length, the general Drift to the South of *Warwickſhire* will be found to wind about almoſt South-South Weſt; ſo on the Northern Part, 'twill be almoſt North and South.

AS for the Particulars within my Knowledge or from good Authority;

At *Baldoe* and *Madeſton*, the Dip to S. E. is - - - - - - -	1 Foot in 20 Feet.
At *Tranent*; S. S. E. - - - - -	1 ——— 20
At *Auchinclough* - - - - - -	1 ——— 03
At *Widrington*, S. E.	1 ——— 20
Burnett and *Birſleton* pitch North	———
Stowey, *Littleton*, and *Farringdon* to S. E. - - - - - - -	11 Inches in 3 Feet.
At *Stanton*, to the Eaſt - - - -	11 ——— 3
At *Ditto*, another Vein, to N. E. by E.	11 ——— 3
P. 128. Doctor *Plott* ſays, that at *Wedneſbury* and *Hardings-Wood*, and, generally ſpeaking, in *Staffordſhire*, the Dip is, Eaſt - - From	1 Fath. in 3, to 1 in 5.
Though it frequently alters its Bearing by a Leap, and likewiſe its Dip, as at *Bidulph* it is almoſt perpendicular, and in other Places, at *Cheddle* in *Staffordſhire*, the Dip is S. E. by S. - - -	1 Fath. in 10.

Coal is generally dug in Valleys or Low Grounds, the Surface whereof at *Sutton*, *Farringdon*, *Littleton*, &c. is moſtly a red Soil, which under the firſt or ſecond Spitt degenerates,

nerates into Malm, or Loom (which ſometimes yields a Rock of red Fireſtone) 'till they come to 4, 5, and often to 10 or 12 Fathom deep, when by Degrees it changes to a grey Millſtone of 18 Inches or 2 Foot thick, and then to the Coal Clives, firſt reddiſh and ſoſt, then to more dusky, hard, and black Rocks, which are diſtinguiſhed by their lying in Beds obliquely, as I ſaid before. But in the foreſaid *Somerſetſhire* Works, they never meet with Freeſtone as in the Works at *Newcaſtle*, *Scotland*, *Staffordſhire*, and *Lancaſhire*. Sometimes theſe Clives prove extream hard, ſo as to be blown up with Gunpowder, and the harder theſe prove, the Coal is commonly the better under them, for where-ever they find theſe Clives, they are ſure to find Coal, though ſometimes not worth working; for if they continue ſoft or reddiſh, the Coal is ſo likewiſe.

THE firſt or uppermoſt Vein at *Sutton*, is called the *Stinking Vein*; It is hard Coal and good for Mechanicks, but of a ſtrong ſulphureous Smell. Under this Vein, generally about 5 Fathom and a half, ſeldom more than 7 Fathom, lies another, which from certain Lumps of ſtony Subſtance (like a *Caput Mortuum*) mixed with it, they call the *Cat-head Vein*; though theſe Cats look like the other Coal, yet they lie in the Fire without burning. Under this latter Vein, 5 or 6 Fathom deeper, lies the *Three-Coal-Vein*, ſo called, becauſe it's divided into three different Partings, each about a Foot thick; the Parting between the uppermoſt and middle Coal of this Three-Coal-Vein, is a Rock of one Foot, and, in ſome Places, two Foot thick; but the middle, and third Coal of this Vein lie like two Stones one on the other, looſe, without any Separation of a different Subſtance.

THESE three Veins before-mentioned, *viz. The Stinking*, *The Cat-head*, and the *Three Coal-Vein*, are ſometimes dug in the ſame Pit; but the next Vein which I am going to mention, is generally wrought in a ſeparate Pit; for tho' it lies the like Depth under the other, yet the Cliff between them is not only very hard, but ſubject to much Water; wherefore I have repreſented a Pit dug through the Three firſt Veins at A, another to the *Three-Coal-Vein* at B, and ſo if they ſink on any of the lower Veins, they go more to the North-Weſt: Next, under this, is the *Peau Vein*, ſo denominated, becauſe it is figured with Eyes, reſembling thoſe in a Peacock's Tail, which Bird, in *Somerſetſhire* Dialect, is called a *Peaw*. The Cliff lying between the former Vein, and this, is variegated with Cockle Shells and Fern Branches, and where they find theſe Variegations in the Cliff, 'tis a certain Indication that they are coming to this Vein which is ſearched after about 15 Fathom to the North-Weſt of the former; under this, and between five and ſix Fathom lower, lies the *Smith Coal Vein*, about a Yard thick, and under that, about the ſame Depth lower, is the *Shelly-Vein*, and as much lower again, lies a Vein of Ten Inches, which being little valued, I can give little Account of; and ſome ſay there is another under this again, but it has not been wrought in the Memory of Man. At *Farringdon* they have the ſame Veins with the foregoing, and, as I am informed, agree in every Part; but as this is diſtant four Miles South-Eaſt, from thoſe at *Biſhop-Sutton*, ſo in their regular Courſe they would lie a Mile and one third deeper than thoſe at *Sutton*, but they appear to be near the ſame Depth, and therefore there muſt be a Trap up, of a Mile and one third between the two Works. Between *Farringdon* and *Littleton* they keep their regular Courſe, but at *Littleton* the deepeſt Vein is the beſt Coal, and is about a Yard thick, though the ſame proves ſmall at *Farringdon*, which is but a Mile aſunder.

NOW between theſe Works there are Hills, the Tops whereof are a ſtony-arable, mixed with a ſpungy Earth and Clay, which being removed, there are Quarries of White Lyas of different *Strata*, or Beds, which keep a regular Courſe to about 10 or 12 Feet in Depth; then a Clay, and regularly at four Fathom under the loweſt Bed of Lyas is found a Blue Marle about a Yard thick, then an inſipid Earth of the ſame Thickneſs, under which lies a black Marle fatter than the former, and under that a ſpungy yellowiſh Earth; all this lies above the Red Soil, which, I ſaid, is generally on the Surface of the Valleys, in which the Coal dug in in theſe Parts is found; and as this red Soil on the Surface degenerates into Malm or Loom underneath, ſo towards the North-Weſt, beyond or without the Veins of Coal, *viz.* about *Windford* in the ſame County, it turns to Ruddle, or *Red-Okre*, uſed chiefly for marking Sheep, or for Ground Colours, or for Priming inſtead of *Spaniſh Brown*, and often counterfeits *Bole Armon.*

ON the other Hand, in *Stanton* Pariſh, about a Mile to the N. E. of the Coal-Works at *Sutton*, and in the ſame Courſe with them, they have found the ſame Veins; but there they dip full Eaſt, and conſequently their Drift or Level is North and South, which the Workmen attribute to Ridges which they meet with on both Sides, and which hath occaſioned them to diſcontinue the Work that Way.

AT this laſt Place, they have little or none of the red Earth or Malm towards the Surface, but come quickly to a Sort of Iron Gritt, or Grey-Tyle-Stone, which is the Forerunner of the Black or Coal Clives: In other Things it agrees with the Works at *Stowey.*

IN the ſame Pariſh of *Stanton-Drew*, but a little remote from the former to the Eaſtward, they have another Work very different from the former. The Courſe of theſe Veins is to the Eleven-a-Clock Sun (as they term it) they riſe to the Five a-Clock Afternoon, and pitch to the Deep, to the Five-a-Clock Morning; they work only Three Veins, though there are more; the firſt or uppermoſt is about 3 feet thick, ſmall Lime-Coal. Three Fathom under this, lies a Vein 2 Feet and a half thick, hard Coal, fit for Culinary Uſes. which they call the *Great Vein*, in reſpect to a leſſer, lying about the ſame Depth under it, which is but 10 Inches thick, though good hard Coal.

AT *Clutton*, which is two Miles South from hence, in the ſame Drift with theſe laſt mentioned, they appear again; the Surface is Red Malm in ſome Places, to 12 and 14 Fathom, then Coal Clives for 5 or 6 Fathom, and in other Things agree with the former.

AT *Bedminſter*, *Breſleton*, *Queen-Charleton*, and *Burnett* they have 4 Veins, which pitch North ; (here alſo they have Red Malm, 4 or 5 Fathom) ; 1ſt. The uppermoſt or *Whippy Vein* is from 3 to 6 Feet thick ; 2d. The *Pot-Vein*, 6 Fathom under the former, 18 Inches thick, all hard Coal ; 3dly. The *French Vein*, 7 Fathom under the other, from 2 Feet and a half, to 3 Feet thick, all ſolid Coal. 4thly, The *Rock Vein* always diſtinguiſhed by a Rock of Paving-Stone, or Penant lying over it, which Rock lies in *Strata* of grey Slate, or Paving-Stone, ſometimes 20 Feet thick ; this Vein therefore is never wrought in the ſame Pit with the former, but about 200 Yards more to the Land it's computed 7 Fathom under the former.

ALL the Works before-mentioned agree in the oblique Situation of the Coal, and of the Cliff, which lies over the reſpective Veins, (all pitching about 22 Inches in 6 Feet) and in the different *Strata* of Earths found over the reſpective Veins ; but they differ in reſpect to their Courſe, Level, or Drift, as alſo in Thickneſs, Goodneſs, and Uſe.

AT *Naylſy*, *Publoe*, *Cumpton-Dandoe*, *Houndſtreet* in *Chelworth*, *Paulton*, *Timbersbury*, *Welton*, *Childeompton*, *Midſummer-Norton*, *Stratton*, *Kilmerſton*, *Holcolm*, *Folkland*, *Stoke-lane*, and *Leigh*, under *Mendip*, are Coal-Works, of which I want ſufficient Information.

BUT as I never heard any Coal was found either Weſtward or Southward of *Mendip* Hills, ſo the Chalk Hills of *Marlborough-Downs* and *Salisbury-Plains*, ſeem to ſet Bounds to the Coal Country on the Eaſt and South-Eaſt, of which I have ſuppoſed Fig. II. a Section from South-Weſt to North-Eaſt.

ALL theſe *Somerſetſhire* Coal Mines differ from the *Staffordſhire*, *Lancaſhire*, *Derby*, and *Scotch* Works in one Particular ; for there is no Freeſtone lying over the Coal in any of theſe Pits ; on the contrary, the Freeſtone Quarries on *Dundrey* Hills, intercept the Works of *Naylſy*, *Bedminſter*, *Breſleton*, *Queen-Charleton*, and *Burnett*, from thoſe at *Stanton*, *Clutton*, *Farringdon*, *Littleton*, *Sutton* ; and ſo does *Oddown*, and the other Freeſtone Hills about *Bath*, ſeem to

cut

cut off the Communication under Ground, between the other before-mentioned *Somerſetſhire* Works, and thoſe of *Glouceſterſhire*.

THUS much of the South-Weſt End of this Coal-Plan. I have had Opportunity alſo of being under Ground, and viewing ſeveral Coal Works in *Scotland* and *Northumberland* at the Northern End of it, and to obſerve the ſeveral *Strata* there.

AT *Widrington* in *Northumberland*, they have 4 Fathom Clay, then a Seam of Coal about 6 Inches thick, not worth working, then a white Freeſtone, then a hard Stone, which they call a *Whin*, then 2 Fathom of Clay, then a white, ſoft Stone, and under that a Vein of Coal 3 Feet 9 Inches thick. This is a ſmall Coal of the ſame Nature, but not ſo good, as the *Newcaſtle* Coal which comes to *London* Market. Theſe Veins dip to the South Eaſt one Yard in 20. Near *Tranent* in *Eaſt-Lothian* in *Scotland*, the Coal dips alſo to the South-Eaſt in the ſame Proportion; But at *Baldoe*, in the Pariſh of *Campſy*, Three Miles from *Kilſyth*, it dips to the N. E.; and at *Madeſtone* near *Falkirk*, to the ſame Point, and in the ſame Proportion: The *Strata* of Earths and Minerals at theſe Places, agree very near; they have, as the Ground riſes or falls, 1, 2, or 3 Fathom of Clay, then 11 Fathom of Sclate or Coal Clives, one Fathom Limeſtone, under that 2 Fathom Sclate, Earth and Stone, and then Coal; and all theſe agree in this, that the Pits generally need no Timber, and have a good Roof, which is ſupported by Pillars of Coal which they leave in the Working. At *Baldoe* the Coal is commonly 45 Inches thick, and all along for ſome Miles Eaſtward thence on the Sides of the Hills are Crops of Coal and Limeſtone, and oftentimes the Tenants ſpit up as much as will ſerve their Turn for a Winter's Burning, juſt under the Surface, for there wants a Market, and it is ſcarce worth working for Sale: And to the N. W. and N. in the Drift of the Coal in higher Ground, and conſequently lying over it, there appear in the Sides of the Hills, Seams of Sparr and Lead, the Drift of which is N. E. and lies almoſt perpendicular; but what Obliquity there is, pitches to the South-Eaſt.

AT *Auchinclough*, ſix Miles Eaſt from *Kilſyth*, there is a Coal 18 Feet thick; this dips one Foot in three, and is not purſued by reaſon of Water, and for want of a Market will not quit the Coſt of draining.

AT *Madeſtone*, the Coal is 4 Feet and a half thick, about 3 Fathom and a half deep; they land it (as at many Coal Hughs in the Country) on Girls Backs by Ladders.

NEAR *Tranent*, three different Veins of Free Coal have been wrought, the uppermoſt, being ſoft and tender, has been neglected, though it is, as I have been told, 4 Feet thick.

THE Main Coal is the uppermoſt now wrought, about 18 or 20 Fathom below the Surface; it's 7 and a half, 8, 9, and in one Place I meaſured it 10 Feet thick; it comes out very large. They bench or undermine it in Working, and drive it out with Wedges in great Clefts. The Floor, as well as the Roof of this, is of Freeſtone. In this Work I walked for two Hours forward and backward, between ſquare Pillars of Coal left to ſupport the Roof. Ten Fathom under this, is the *Splenty Coal*, ſometimes called the 5 Feet Seam, though 'tis ſeldom above 4 Feet and a half thick. It's an hard, but not ſo large a Coal as the other, and makes a clear and ſtronger Fire. Theſe dip to the S. S. W. and crop out to the N. E. of *Tranent*. Near their Crop, two other Veins have ſince been tried of Caking Coal, the Uppermoſt is 10 Yards under the 5 Feet Vein, the Undermoſt is 3 Feet thick, 7 Yards below the laſt mentioned, and dips a little more Southward, and is harder, and more cakeing than the former, but not altogether ſo firm as the *Newcaſtle* Coal.

THESE Works, like thoſe in *Somerſet*, have their Traps and Ridges which they here call Hitches and Troubles.

THESE are all the Obſervations I have made at the two Extreams of this Coal-Plane. As to the Coal found toward the middle Part of it, *Leigh*, ſpeaking of the Works in *Lancaſhire*, denies the *Strata* there, to lie according to the Laws

Laws of Gravitation: He ſays, the Firſt is Marl, Second Freeſtone, then Iron Stone, then Kennel, then ſome other *Strata*, then Coal again.

In the *Philoſophical Tranſactions*, Mr. *Bellars* gives you an Account of the *Strata* at *Dudly* in *Staffordſhire*, which is inſerted in the following Scheme.

Dr. *Plott* tells us, That the Cannel Coal is of ſo cloſe a Texture, that the Choir of the Cathedral at *Litchfield* is paved with it, and *Alabaſter-Lozangy*; that they turn Saltſellers, Standiſhes, Candleſticks, *&c.* in it.

IN the Lord *Paget's* Park, of *Beaudeſart*, is dug of this Coal, which he thinks is ſo called from the *Britiſh*, *Canwyl*, a Candle, and that from *Cam*, *Candidæ*, and *Gwyll*, *Tenebræ*.

Common Coal at *Wednesbury*, *Dudley* and *Sedgley* in *Staffordſhire*, burns to a white Aſh, leaving no Cinders, and therein reſembles the *Scots* Coal.

THE Peacock Coal at *Henly-Green* near *Newcaſtle-under-Line*, does not exceed other Pits in Hardneſs: It is divided into Plates about one fourth of an Inch thick; this differs from the *Somerſetſhire* Vein, which they call by the ſame Name; for the laſt mentioned Coal cakes, and produces hard Cinders, but reſembles it in its changeable Colour.

AT *Etingal* in *Sedgley*, the uppermoſt Beds of Coal are 14 Yards thick above the Iron-ſtone. After the Soil or Arable, Gravel and Sand are taken off; all the Baſs Freeſtone, of what Sort ſoever, Clunks, Bats and Partings, keep a regular Courſe one above another. One Work there is at *Biddulph*, which dips almoſt perpendicular, in others the Dip is about 1 Foot in 10, as at *Wednesbury*. In the 3d or moſt Common Sort of Coal, the Dip is 1 Foot in 3, or 1 in 5.

AT *Footerill* in *Apidale* they drive in upon the Level; it frequently alters its Dip or Crop by a Leap, which is the ſame as they call a Trap in *Somerſetſhire*.

AT *Harding's-Wood* about *Newcaſtle*, and, generally ſpeaking, the Row, lying N. and S. draws nearer together Northward, and ſpreads to the South; it dips there Eaſt, and riſes Weſt, but at *Cheddle* the Dip is S. W. by S. or to the 2-

a Clock Sun. The Roof of the Coal here is generally Free-ſtone, and the Floor, Earth, or Iron-Stone.

ALL theſe different *Strata*, as found in any of thoſe Places I have obſerved myſelf, or met with from others, I have at one View repreſented in a former Scheme, and
Fig. 1, 2. which I have before deſcribed on a ſuppoſed Plane. I here likewiſe have protracted in a globular Projection, ſuppoſing the Maſs of the terraqueous Globe, to conſiſt of the foregoing, or perhaps of ten thouſand other different Minerals, all originally, whilſt in a ſoft or fluid State, tending towards the Centre; it mechanically, and almoſt neceſſarily follows, by the continual Revolution of the Crude Maſs from Weſt to Eaſt, like the Winding up of a Jack, or rolling up the Leaves of a Paper Book, that every one of theſe *Strata* (tho' they each reach the Centre) muſt, in ſome Place or other, appear to the Day, in which Caſe there needs no Specifick Gravitation to cauſe the lighteſt to be uppermoſt, *&c.* for every one in its Turn, in ſome Place of the Globe or other, will appear near the Surface; and were it practicable to ſink a Pit to the Centre of the Earth, all the *Strata* that are, would be found in that Pit, and, according to the Poet, *Ponderibus librata ſuis*. Add to this, that in all Places
Dr. *Stukely.* within my Knowledge, the Obſervation of another Membe of the Society has held good, that the Precipices of almoſt all Hills are to the Weſtward, whereas the Aſcent to the Eaſt is more gradual. The farther Enquiry into which, I offer to the Curious, who have better Opportunity; and I only hint farther, to ſuch as have an Aſtronomical Genius, that poſſibly the Motion of the Earth may receive ſome Confirmation from the fore-mentioned Situation of the *Strata* of Coal and other Minerals, and eſpecially if found uniform in different Parts of the Earth; for if the foreſaid Poſition of the ſeveral *Strata* and Aſcents of Hills, is mechanically accounted for, by the ſuppoſed Motion of the Earth from Weſt to Eaſt, whilſt the Earth was ſoft and tender; the ſaid Motion of the Earth is reciprocally the neceſſary Reſult of all theſe Facts, and is therefore itſelf an undoubted Fact; but this is an Hint of ſuch Importance, as to deſerve a more exact Reſearch.

At Dudly in Staffordſhire (as by Mr. Bellers) the Dip is Eaſt, but at Cheddle, the Dip is S. E by S.		At Wedneſbury, as by Dr. Plott the general Dip is E. but at ſome Places S. E. and by S.		Dr. Leigh ſays the Strata in Lancaſhire lie thus.		At Amblecott.	
	feet.						feet.
1 Yellowiſh Clay	4	Earth and Stone		1 Marle.		Top Earth	21
2 Bluiſh ſoft Clay	5			2 Freeſtone.		Rock	42
3 Bluiſh hard Clay, or Clunch with Mineral Plants, which is a ſure Sign of Coal - -	25	Blue Clunch, or white, in the Weſt is called Clives.		3 Iron Stone. 4 Kennell Mine. 5 Rubble and other Strata.		Blue Clunch 4 Stones parted with earth called the 3 Frogs.	9
4 Blue ſoft Clay	9	He does not take Notice of the intermediate Strata.		6 Coal.		Cath. Earth mixed with wild Iron Ore, which lies upon the Coal.	
5 Fine grained grey Stone, found only in ſome Pits -	4						
6 Light blue Clay	21	Note alſo, between every of the flores of Coal is a Batt or Subſtance between Coal and Earth, black like Marle.		Plott at Dudly, from the Metalla Martis of — Dudly, Eſq; after the 3 uppermoſt, or white Meaſures.			
7 Hard grey Rock with imperfect Vegetables - -	75						
8 Blue Clunch, as N°3.	5						
9 Dunrow Batt, a black Subſtance.			feet.				
10 Bench-Coal	3	Coal the Top Floor	4	Shoulder Coal.		White Coal, or top Coal.	
11 Slipper-floor, leſs black and ſhining	3	Over Slipper Floor	2	Toe Coal.		Heath or tough-Coal.	
12 Spin-Coal more black - - -	4	Grey Floor	2				
Between every Strata of Coal is a Batt of the thickneſs of half a Crown.				Foot Coal.		Fine Coal or Sea Coal.	
				Yard Coal.		The Veins.	
13 Stone Coal		Lamb Floor	2	Slipper Coal.		Long Coal.	
14 Dunrow Batt	1	Kitt Floor	1	Sawyers Coal.		Rough Coal.	
15 Dunrow Iron-Stone or grey Iron Ore	1	Bench Floor	2½	Friſly Coal, all the Veins making 10 Yards thick.		Spin Coal. Top of Suder Height.	
16 A blue Batt called *White Row* (in which the following Iron Ore lies)	3	Spring Floor	1	Several Meaſures of Iron Stone.		Bottom Bench Back Stone. Iron Stone 3 Yards with Earth and all.	
17 Hard, black, Iron Ore in Nodules, having whitiſh Subſtance between them - -	*in.* 15	Lower Slipper-floor Batt from 1 to 3 Yards thick, to the neither Coal, *viz.* Slip-floor	2½ 1	Coal again 2 Yards thick called the Heathen Coal.		Heathen Coal.	
18 Midrow Grains hard grey Iron Ore with white Spots	2	Lamb Floor	2	Succeeding Strata at Dudley in Staffordſhire.		Plott ſays, under the 10 Yards thickneſs of Coal, and above the Heathen-Coal are Iron Ores.	
					Feet.		
19 Gumlin Batt, a fiſſile and black Subſtance - - -	2	Oary Floor Blench Floor	1 1	26 Foot-Coal-Courſe 27 A brittle ſhining Batt	1 6		
20 D°. Iron Stone being hard, blackiſh Iron Ore with white Spots - -	9	Spring Floor Slipper Floor	2 2	28 Heathen Coal 29 A Bat very near to Coal, but will not burn.	6 1	1 Black Row Grains. 2. Dunrow Grains. 3. White-row Grains, ſo called from the Earth of thoſe Colours, in which they lie.	
21 The ſame with N°. 19 - -	*in.* 18	Earth	1	30 Bench-Coal Bat 6 Inches.	2		
22 Canoc hard grey Iron Ore - -	6	Meu Floor	1	31 a Coal not generally work'd.		4 The Rider-Stone. Clowd-Stone.	
23 A Batt, as N°. 19, and 21) - -	1	Batt Omfry Floor	1 2	In all 36 Fathom, or 188½.		5 Bottom Stone. 6 Cannoc-Stone.	
24 Rubble Iron Ore dark Grey - - -	6	Iron-ſtone Earth					
25 Cable Batt	2	Iron-ſtone					

At Sutton and Faringdon in Somerſetſhire, from my own Obſervation, the Dip is S. E.	feet.
Yellowiſh Earth	2
Beds of Lyas	10
Yellowiſh Loom	6
Blue Clay	3
Lighter Blue Loom	3
Deep blue Malm ſoft and ſoapy.	3
Marcheſite	6
Deep blue Marl	4
RedEarth &Malm	60
Red Fireſtone	2
Grey Millſtone	2 or 3
Coal Clives	35
Coal the Stinking Vein 1 *f.* 8	20
Clives and Dung	42 *f.*
Cathead Vein	2 *f.* 6
Dung and Clives	42 *f.*
Three Coal Vein	3 *f.*
Hard Cliff with Cokles and Fern Branches - *f.*	48
Peau Vein with Peacocks Eyes *f.*	2
Cliff	33 *f.*
Smiths Coal	3 *f.*
Cliff	36 *f.*
ShellyVein	2 *f.* 6
Cliff	36 *f.*
Ten-Inch Vein	10 *f.*

At Widdr[illegible] in Northumberland, from my own Obſervation.	
Clay	24 *f.*
Coal	6 *f.*
White Freeſtone.	
Whin or hard Stone	
White, ſoft Stone	
Coal.	

At Burnet Q. Charlton and Briſleton in Somerſetſhire.	
Red Earth from 10 to 30 Fathom.	
Uppermoſt Vein from 3 to 6 Feet.	
Cliff	36 *f.*
PotVein hard Coal	1 *f.* 6
Clives or Cliff	36 *f.*
French Vein ſolid 2 *f.* 6 to 3 Feet thick.	
Rock of Penant, being Strata of grey Iron Tyle and paving Stone *f.*	20
Clives	22 *f.*
Rock Vein of Coal	

At Tranent in Scotland, from my own Obſervation, the Dip is S. E. 1 Yard in 20.	
Clay	30 *f.*
Freeſtone	4 *f.*
Main Coal	9 or 10 *f.*
Mettals or Cliff	60 *f.*
Splenty Coal	4 *f.* 6

At Stanton Drew the Drift is to 11 a Clock Sun.	
Little Red Earth.	
Clives	18 *f.*
Coal	3 *f.* 6
Clives	18 *f.*
Hard Coal, as at Sutton - *Inches*	10
Another Work there the Dip is full Eaſt after the Red.	
Iron grey Tile Stone	
Coal Clives.	
Coal.	

At Baldoe and Madeſtone in Scotland, the Dip is N.E.	
Clay from	6 to 18
Slate or Clives	66 *f.*
Lime Stone	6 *f.*
Slate and Coal	12 *f.*
Coal	4 *f.* 6

Strata mentioned in the Phil. Tranſ. and which I have alſo obſerved at Harwich Cliff.	
Fine Sand with Gravel.	
Shells without Order.	
Bluiſh Clay with Pyrites and Copperas ſticking in it, 1 Foot.	
Stones with Sticks and Shells ſticking in them. - *f.*	1
Clay	1 *f.*
In all about	50 *f.*

At Watford Gap in Warwickſhire, per Dr. Stukely.	
Marle, *&c.*	6 *f.*
Soft Rock.	
Bed of Clay.	
Hard blue Stone.	
Springy and Boggy.	

Fig. I. *A Section of a Coal Country in* Somerſet-ſhire *abo*

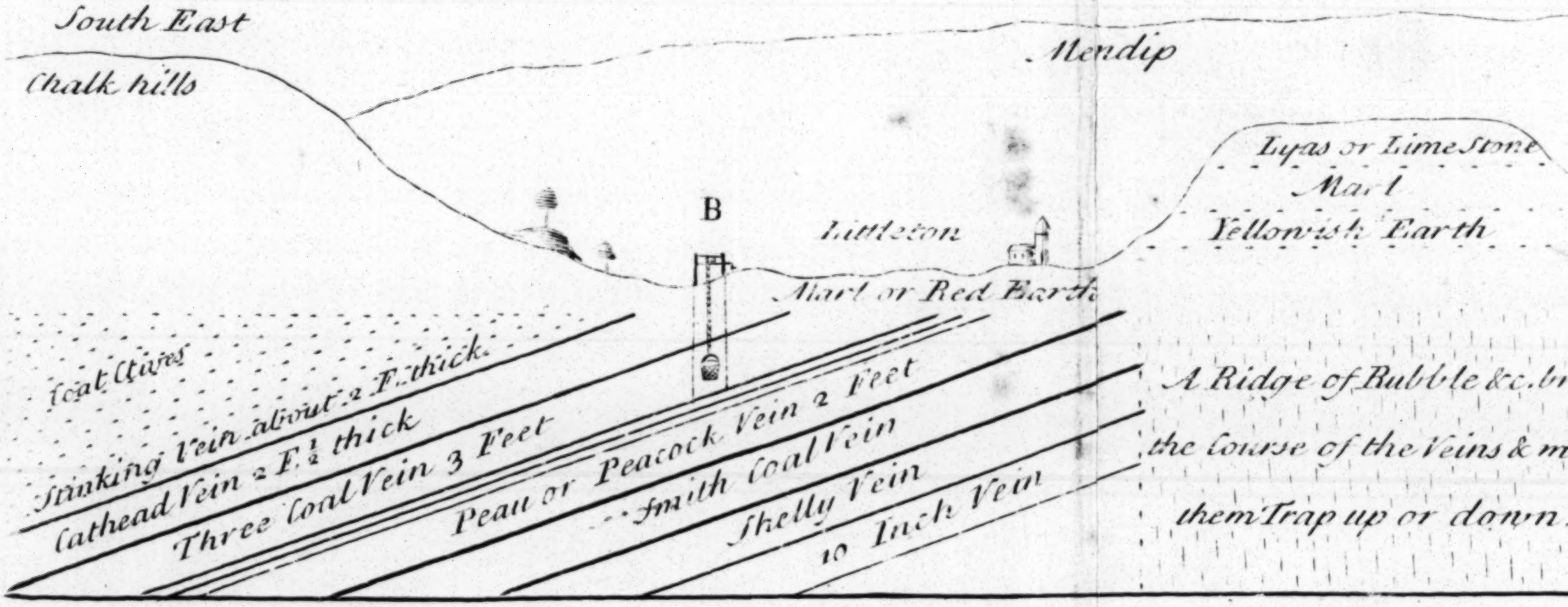
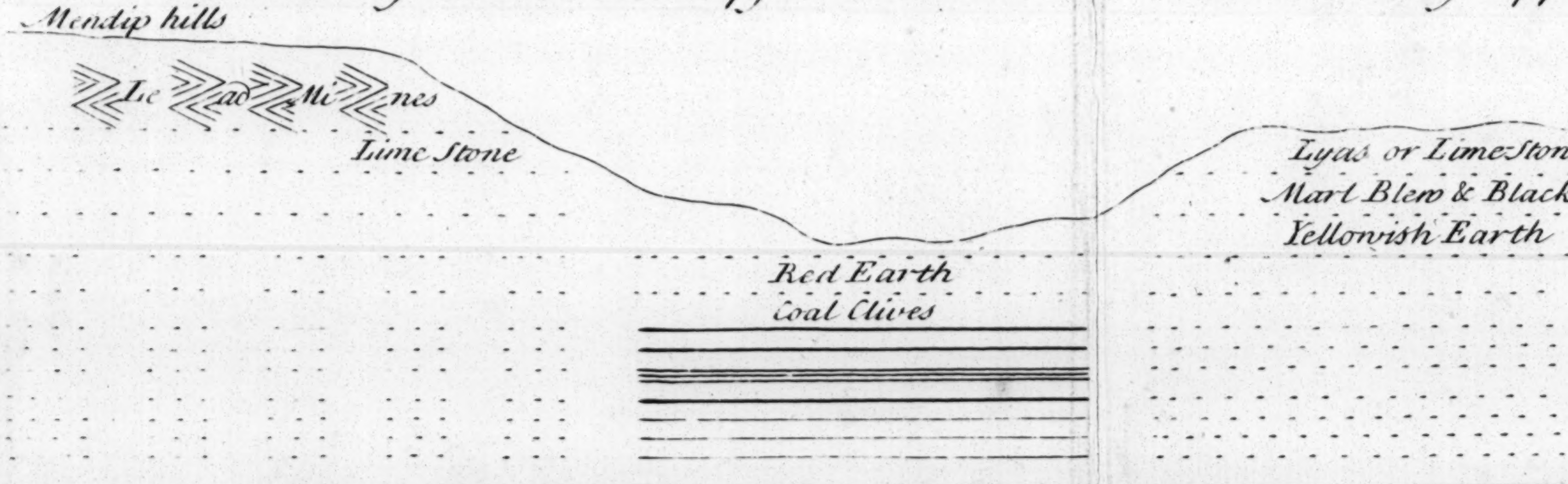
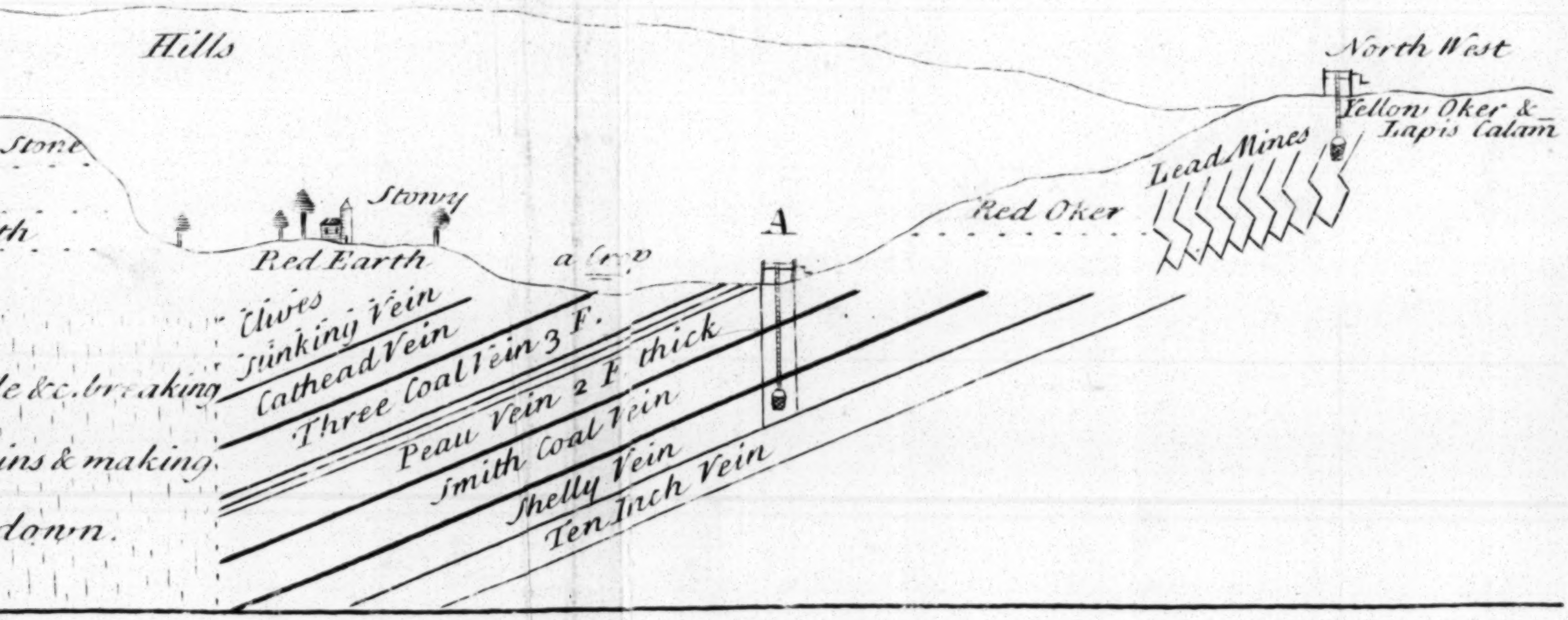


Fig. II. *A Section of the same Country from South West to North East being supp*



e about Miles 20 ſrom S.E. to North West.



supposed on the driſt or Level of the Coal.

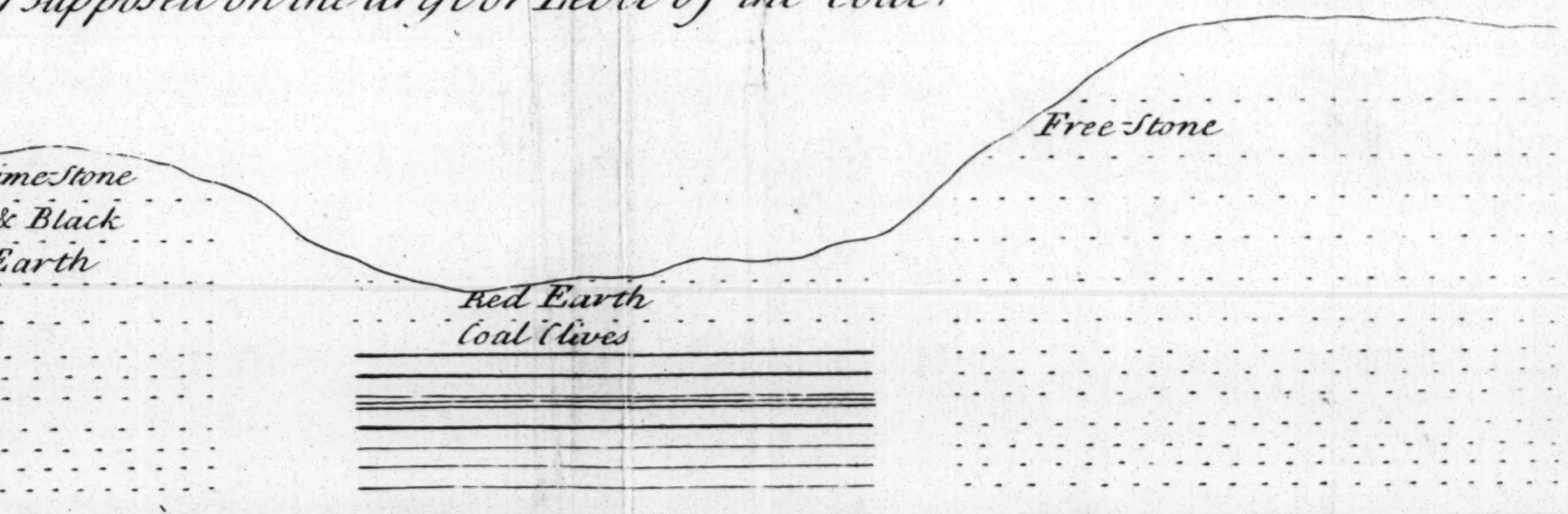


Fig. III.

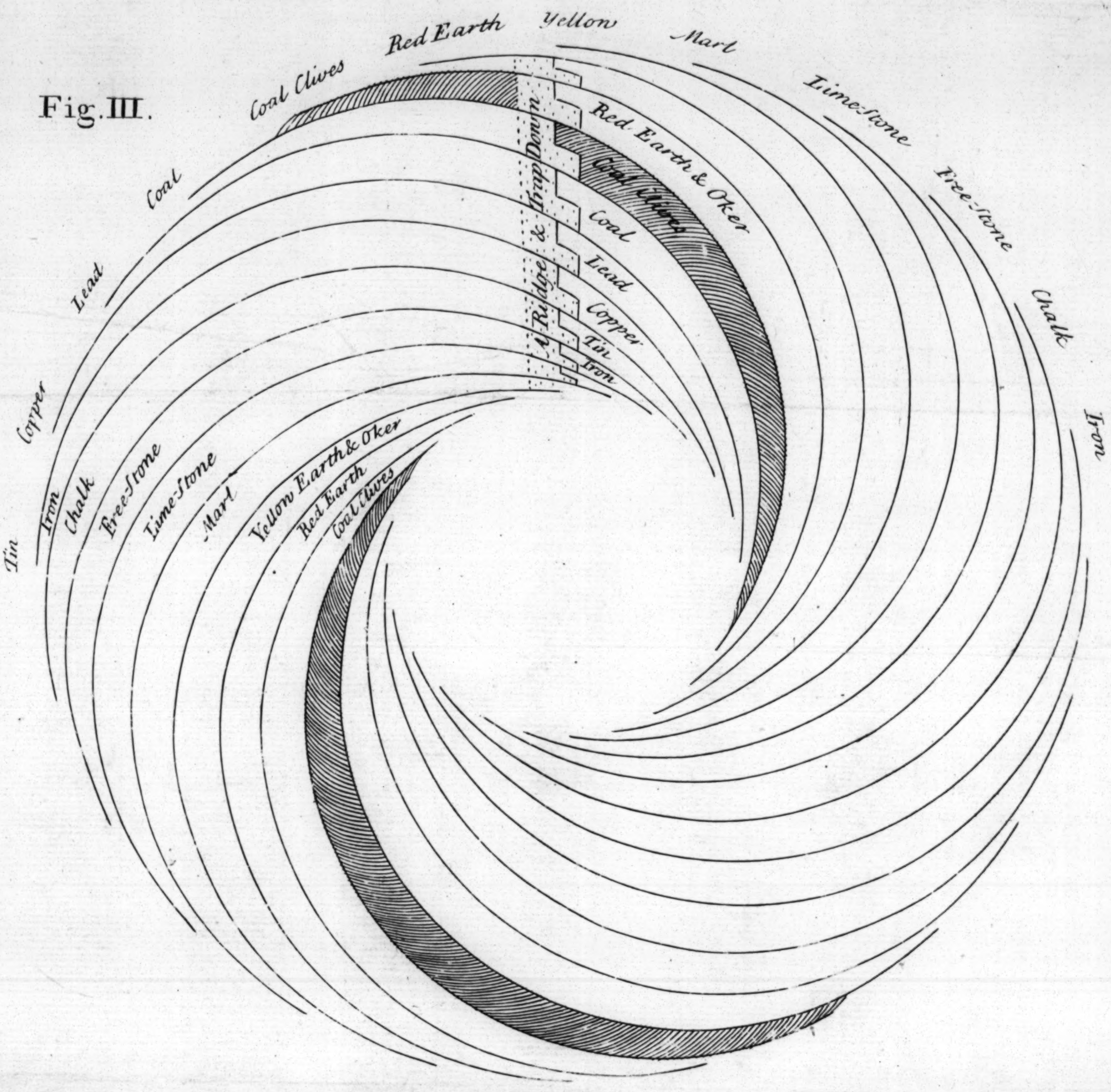


Fig. IV.